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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,688	10/25/2001	Theodore R. Sana	10010819-1	3172

7590 10/23/2003

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EXAMINER

TUNG, JOYCE

ART UNIT

PAPER NUMBER

1637

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/001,688	SANA ET AL.	
	Examiner Joyce Tung	Art Unit 1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 07 July 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 9-12 is/are withdrawn from consideration.
- 5) Claim(s) 19 is/are allowed.
- 6) Claim(s) 6-8 and 15-18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Following the entry of the amendment filed 7/7/2003, the claims 6-8 and 15-19 are pending.

1. Applicant's arguments filed 7/7/2003 with respect to claims 6-8 and 15-19 have been considered but are moot in view of the new ground(s) of rejection based on the discovery of new reference.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-8 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kourilsky et al. (Biochimie, 1971, Vol. 53, pg. 1111-1114) in view of Brenner (5,604,097, issued 2/18/1997).

Kourilsky et al. disclose DNA-DNA hybridization in the presence of urea at low temperature. The DNA is immobilized on filters (See pg. 1111, column 1, the Introduction). Kourilsky et al. also disclose the hybridization of the different sizes of lambda DNA in the presence of urea at low temperature, 40°C (See pg. 1112, fig. 1). Kourilsky et al. also concluded that DNA-DNA hybridization on filters in the presence of urea at low temperature than their standard hybridization temperature can be used as routine technique (See pg. 1113, column 2).

Kourilsky et al. do not disclose that DNA is attached to the surface of a glass substrate.

Brenner discloses a method of tracking, identifying and sorting classes of molecules by the use of oligonucleotide tags. The tag is immobilized on the solid support which comprises a wide variety of composition including glass (See column 12, lines 40-47).

One of the ordinary skill in the art at the time of instant invention would have been motivated to use glass as a solid support in the DNA-DNA hybridization method in the presence of urea at lower temperature than their standard hybridization temperature. Brenner states that when used in combination with solid phase supports such as microscopic beads, the invention provides a readily automated system and it is very useful in large-scale paralleled operations, such as sequencing or simultaneous analysis (See column 4, lines 43-49). It would have been prima facie obvious to use glass to attach an oligonucleotide probe for hybridization at a temperature lower than their standard hybridization temperature in the presence of urea.

4. In the response filed 7/7/2003, the response argues that the method of Kourilsky et al. (Biochemical and Biophysical Research Communication, 1970, Vol. 41(4), pg. 1080-1087, cited in the Office action mailed 5/21/2003) involves phage lambda mRNA and phage lambda DNA in that the phage lambda DNA is approximately 50kb in size. Kourilsky et al. fail to disclose using an oligonucleotide probe attached to the surface of a glass substrate. In the teachings of Kourilsky et al. the longer DNA immobilized on the filter is hybridized with RNA at lower temperature on the filter in the presence of urea. Nevertheless, it would have been common logic that shorter DNA would be more easily hybridized to other DNA strand in the presence of urea at lower temperature than longer DNA compared with its standard hybridization temperature. Moreover, based upon the study of Kourilsky et al. (See the newly cited reference), it appears that the hybridization of the smaller pieces of DNA is significantly taken

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place (See pg. 1113, column 1) in the presence of urea at lower temperature than their standard hybridization temperature.

Summary

5. Claim 19 is allowable.

6. The following is a statement of reasons for the indication of allowable subject matter:

Concerning claim 19, no prior art has been found teaching or suggesting a method that allows a probe and target to hybridize at a temperature lower than their standard hybridization temperature in which the probe and target are heated in the presence of acetamide.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joyce Tung whose telephone number is 703 (305) 7112. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 703 308 1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 (308) 0196.

Joyce Tung
October 10, 2003

Jeffrey Siew
JEFFREY SIEW
PRIMARY EXAMINER
10/20/03